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Birthweight Is a Big Factor In the Survival of Infants

OF ALL THE FACTORS known to influence the survival of infants, in countries with high standards of medical care, birthweight is the most important. Birthweight trends account for most of the reasons why infant mortality rates in the United States are higher than in northern Europe. They also account for part of the relative by higher death rates in non-white births in the United States.

Birthweight serves as a rough index of the infant's maturity, which will be a composite of the length of the pregnancy and of the rate of development of the fetus. A premature infant faces the handicap of losing the protection of the womb before he is ready for independent existence.

His low birthweight may also be a symptom of retarded development, and therefore of other diseases like virus infection, genetic defect, poor nutrition or material disease and exhaustion. Crude statistics on birthweight tell us very little

about which of these factors are operating.

Statistics show increasing numbers of undersized babies. In 1959, among all live births, 7.7 per cent weighed 5½ pounds or less; in 1964 the percentage was 8.2.

Unfortunately, we lack the statistical information needed to assess the causes underlying this trend or to make accurate projections of its significance for child health. The mortality rate of this group of babies is, however, some 20 times higher than for heavier babies. Put another way, these eight per cent of the births account for almost two-thirds of the infant deaths.

BESIDES the mortality risk, the severely undersized baby has prospects for many kinds of handicaps. His difficulties in respiration are the most urgent medical challenge because of the possibility of permanent damage to his brain from temporary lack of oxygen.

No wonder, then, that providing pure oxygen was a standard regimen for treating premature infants—until statistical studies around 1950 showed that certain forms of blindness common in premature children were caused by excessive exposure to oxygen rather than by prematurity.

The pediatrician caring for the premature infant is indeed walking a precarious tightrope and must be seriously concerned about common sense practices for which there is rarely much profound scientific justification.

Special nurseries for research on prematurity have been established at many university hospitals. For obvious reasons, the pediatrician must move slowly and cautiously in conducting "experimentation." For the

most part, this consists of thorough observation and measurement of the babies' behavior, environment, secretions, chemistry of the breath and of micro-samples of blood, etc.

PROF. NORMAN KRETCHMER, having established such a center at Stanford, has called attention to the biochemical immaturity of the premature newborn: many of his enzyme systems are known to be incompletely developed and he is likely to differ markedly from the adult in the way he disposes of drugs and of special foodstuffs and metabolic intermediates.

There are innumerable questions, even to the best temperature for the incubator: should it be steady or varying? What sensory stimulation should be provided? What kind of exercise? Posture? Feeding? Any drugs? Maternal contact? In general, should one try to imitate the womb as long as possible, or since the infant is now unavoidably an air-breather, should we encourage the most rapid transition to independent life

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